



# Gender and constraints to entrepreneurship in Africa: New evidence from Swaziland



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## ABSTRACT

This paper contributes to closing a knowledge gap on gender, entrepreneurship and development by linking the entrepreneurial productivity to start-up capital and skills. The empirical analysis of a survey of entrepreneurs in Swaziland confirmed the importance of start-up capital for sales. Women entrepreneurs have smaller start-up capital and are less likely to fund it from the formal sector than their men counterparts, pointing to a possible room for policy interventions. Further, business training is positively associated with sales performance of men entrepreneurs, but has no effect on women. However, this does not call for abolishing training programs for women entrepreneurs. Instead their design and targeting should be revisited.

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## 1. Introduction

Policy makers in developing countries, including in Africa, have become well aware of the positive impacts that productive entrepreneurship can have on structural transformation and poverty reduction (Acs and Varga, 2005; Brixiová, 2010; Balamoune-Lutz, 2011). Interest in entrepreneurship as a source of job creation in Africa, especially for women or youth, has also grown (Amin, 2010; Hallward-Dremier, 2011; Balamoune et al., 2014; Brixiová et al., 2015). For women globally, besides economic benefits productive entrepreneurship presents an opportunity for empowerment and better integration into the society (Blomqvist et al., 2014).

Utilizing a recent survey from Swaziland, this paper contributes to literature on gender and entrepreneurial performance in Africa. It first identifies performance disparities (in terms of sales levels and growth) between the early stage men and women entrepreneurs. Two reasons motivate our interest in the early-stage entrepreneurship: (i) the definition of entrepreneurship which emphasizes the start-up process, as in the Global Entrepreneurship Monitor and (ii) hypothesis from Bardasi et al. (2009) that gender barriers to entrepreneurship are likely to be more pronounced during the entry stage of the entrepreneurial process.

Our empirical analysis of a survey of entrepreneurs in Swaziland confirmed the importance of start-up capital for

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entrepreneurial performance, measured in sales. We also found that women entrepreneurs have smaller start-up capital and are less likely to fund it from the formal sector than their men counterparts, pointing to a possible room for policy interventions. Further, while business training is positively associated with sales performance of men entrepreneurs, it has no effect on women. However further research is needed to draw policy conclusions from the latter finding. For example, the underperformance of female entrepreneurs who received training can stem from lower previous education and work experience among women than men.

The paper is organized as follows. [Section 2](#) reviews the literature. [Section 3](#) outlines definition of entrepreneurship used in this paper and discusses methodology. [Section 4](#) presents the results of empirical analysis. [Section 5](#) concludes with policy recommendations.

## 2. Review of literature

In recent years, research on gender and entrepreneurship experienced rapid expansion and ventured in new directions. Some of the traditional topics of research in this area include access to finance, financial literacy, and property rights as constraints as well as comparing entrepreneurial performance between men and women. The more recent research focuses on the intersection between youth and gender, entrepreneurship and development ([Blackburn and Kovalainen, 2009](#) and others). In this paper, we seek to contribute to knowledge on gender differences in entrepreneurial performance in Africa, with evidence from Swaziland.

Policy studies have identified unconditional performance gaps between men and women entrepreneurs in advanced economies ([Organization for Economic Cooperation and Development, 2013](#)). In a related work, [Robb and Watson \(2012\)](#) have not found a gap in performance of female- and male-owned new ventures provided that performance is appropriately measured, that is adjusted for gender differences in risk aversion and firm size. Similarly, [Justo et al. \(2015\)](#) used a sample of 219 former entrepreneurs in Spain to determine reasons for their exits and determine whether female entrepreneurs are more likely to fail than their male counterparts. Their key findings were that (i) female entrepreneurs are more likely than males to exit voluntarily and (ii) female entrepreneurs exited more often than men for personal reasons. [Sabarwal and Terrell \(2008\)](#) demonstrated gender performance gaps in terms of scale of operations and total factor productivity in Eastern Europe. They posited that small size of female-owned firms stems from women being both capital constrained and concentrated in industries with small firms. Others have also noted that women firms are concentrated in crowded, low-value-added sector in services and exhibit limited growth of employment, profitability and market share ([Carter and Marlow, 2007](#)).

Evidence on gender differences in entrepreneurial performance in Africa is scarce. [Bardasi et al. \(2009\)](#) examined gender gaps in performance in established businesses in several African countries, but have not found major gender differences. In contrast, [Hallward-Dremier \(2011\)](#) found that women operate disproportionately in the smaller firms, the informal sector and low value-added industries. However, this study has provided useful, but mostly anecdotal evidence, including on the access to finance. [Asiedu et al. \(2013\)](#) examined empirically the importance of gender of the firm's owner as a determinant of the firm's access to finance in developing countries, with a focus on SSA. Their results suggest that gender of the firm's owner is an important determinant of financing constraints faced by firms in SSA, and more so than in other regions. Utilizing data from the World Bank Enterprise Surveys, [Aterido et al. \(2013\)](#) studied financial inclusion and documented the existence of unconditional gender gap in Sub-Saharan Africa. They explained the lower use of financial services by women through gender income and education gaps as well as women's household and marital status.

The findings of the empirical literature on the impact of training on entrepreneurial performance are mixed. For example, [Fairlie et al. \(2015\)](#) have not found any evidence of longer run effects of training on sales, earning or employees in advanced economies. [Giné and Mansuri \(2014\)](#) found that business training in rural Pakistan improved men's business practices, but not their sales or profits. In contrast, [de Mel et al. \(2015\)](#) showed positive effects of business training on women start-ups in urban Sri Lanka. Similar gaps exist in the literature on gender and start-up capital. Most of the literature finds differences between men and women entrepreneurs in both amount and composition of start-up capital. [Verheul and Thurik \(2001\)](#) carried out study of entrepreneurs in the Netherlands and found gaps in the amount, but not debt-to-equity ratios.

This paper contributes to the links between gender and entrepreneurial performance in Africa. Drawing on evidence from Swaziland, a small middle income country in Southern Africa that exhibited low growth for more than a decade, we pay special attention to capital and skill shortages as constraints to start ups. We also look into the effectiveness of training programs to address them. This empirical evidence contained in this paper can lay foundation for further theoretical research on the topic and inform policies.

## 3. Data and empirical methodology

### 3.1. Data source

The empirical analysis utilizes data from the survey of entrepreneurs in Swaziland, carried out by the UN Swaziland in November 2012 ([UN Swaziland, 2013](#)). The sample included 640 small and medium-sized enterprises (SMEs) in the urban

**Table 1**

Differences between women and men entrepreneurs in Swaziland, 2012.

Source: Authors' calculations based on 2012 UN Swaziland survey. 1/E stands for emalangeni (local currency)

	Men entrepr.	Women entrepr.	SE and stat. sign.
(percent unless otherwise indicated)			
<i>Background</i>			
Age of entrepreneur (years)	38.6	35.5	1.11***
Higher education	49.3	37.3	5.8**
<i>Outcomes</i>			
Firm stable or growing	69.3	60.4	5.76 *
Sales (monthly, Eth)	65.5	26.8	16.5
Sales same or higher than last year	52.9	43.3	3.23 *
Employment (av. 2012)	2.08	1.04	0.48 **
<i>Characteristics</i>			
Skill shortage as barrier	18.5	16.7	2.26
Received business training	24.2	20.4	4.93
Young (35 years or less)	48.6	58.5	2.93 **
Start-up capital (Eth)	68.7	22.9	6.0 ***
Personal contribution (Y/N)	63.7	60.1	2.9
Amount of personal contribution (Eth)	42.7	18.7	4.76 ***
Applied for informal credit	4.1	9.4	1.5 **

\* Denote 10% significance levels.

\*\* Denote 5% significance levels.

\*\*\* Denote 1% significance levels.

areas of Hhoho and Manzini regions. The sampling frame consisted of firms listed in the 2011 SME directory of the Ministry of Commerce, Industry and Trade.<sup>1</sup> The interviews covered information about the firm's objectives as well as the most common opportunities and constraints they encountered. In addition, the survey explored key characteristics of each enterprise such as location, years of operations, sector, employment and sales, among others.

The empirical part of the paper utilizes the definition of entrepreneurship often used by the Global Entrepreneurship Monitor (GEM), where an entrepreneur is '...an adult engaged in setting up or operating a venture which is less than 42 months old...' (Parker, 2009). Among the 640 SMEs surveyed, the GEM concept of entrepreneurship covered 290 firms (i.e. 42 months old or younger), of which 148 were run by men and 142 by women. Following Baumol (1990), we add profit motive as a criterion for the identification of an entrepreneur.<sup>2</sup>

### 3.2. Empirical approach

In Section 3, we explore the conjecture that women entrepreneurs are generating lower sales on average than men and drivers of sales by estimating different versions of the following equation:

$$\Pr(\text{Sales}_i) = \alpha + \left( \begin{array}{l} \beta. \text{Skills}_i + \gamma. \text{InitialCapital} + \delta. \text{FirmCharacteristics} + \dots \\ + \nu. \text{EntrepreneurCharacteristics} \end{array} \right) + \epsilon_i \quad (1)$$

where  $i$  stands for entrepreneurs. The dependent variable (Sales) takes the value of 1 when the total sales have increased or 0 when they stagnated/decreased relative to sales two years ago. The probit model estimates the probability that the variable 'Sales' takes on value 1. In model specification as in (1), "Skills" is a vector of controls including the business training received by entrepreneurs and their perception of the lack of skills as a barrier; "Initial Capital" is a vector of controls including the amount of initial capital, the application for a formal source of finance and the use of a formal source of initial capital; "Firms characteristics" comprises a vector of controls including the size of the business, whether the firm is an exporter, the support the entrepreneur receives from the government, and the age of the business; "Entrepreneur characteristics" capture whether the entrepreneur is 'young' (i.e. is 35 years old or younger).

Further, the same regression model is run using the logarithm of (the level of) sales of the entrepreneur  $i$  as a dependent variable and doing the regressions separately for men and women entrepreneurs. Two estimations methods have been applied to test the model: Ordinary least square (OLS) regressions and (ii) quantile regression (QR). The OLS measures the effects of the explanatory variables at the mean sales, and assumes a well-shaped distribution around the mean. The QR estimates the effect of the explanatory variables at different quantiles of sales to understand factors that drive sales at various sales ranges.

<sup>1</sup> New firms and those that outgrew the SME size as well as firms in the informal sector are not listed in the directory and hence may be systematically underrepresented. To partly correct for this bias, a large number of enterprises were interviewed relative to the population in selected areas.

<sup>2</sup> This accounts for the lower number of observations in the regression results.

**Table 2**

Summary statistics.

Source: Authors' calculations based on 2012 UN Swaziland survey.

Variable	Sales (E)	Age of entre-preneur (years)	Age of business (months)	Employment (people)	Hours per week working in the firm	Start-up capital
Women (mean values)						
By sales quantiles						
Bottom 10%	213	35	23	0.4	32.8	7 734
10–25%	1257	33	24	0.7	35.9	7190
25–50%	4444	35	26	0.5	41.1	15,268
50–75%	12,341	37	22	1.7	42.3	30,019
75–90%	29,778	34	15	1.4	52.4	47,556
90+%	273,000	42	26	1.9	47.9	65,200
Men (mean values)						
Bottom 10%	133	39	26	1.1	22.4	7822
10–25%	1481	37	27	0.4	45.2	14,517
25–50%	4875	37	21	1.2	42.6	26,859
50–75%	14,982	37	25	2.0	36.6	25,518
75–90%	38,743	41	22	1.6	46.0	94,500
90+%	504,133	42	26	8.1	50.4	238,067

#### 4. Evidence from Swaziland

This section presents empirical results from the survey of entrepreneurs in Swaziland. It examines gender differences in entrepreneurial performance (proxied by the sales), from the point of view of entrepreneurs' start-up capital, skills, work experience, and resolve. The sample included both men and women entrepreneurs.

##### 4.1. Descriptive statistics and Kernel density estimates of entrepreneurial sales

This part examines differences in means between female and male entrepreneurs along several dimensions. It reveals that on average, women entrepreneurs are a few years younger than men. Moreover, while almost half of male entrepreneurs had higher education, only slightly more than one third of female entrepreneurs possessed one. In contrast, more women than men entrepreneurs received business training. These indicators point out to possible skill shortages among female entrepreneurs and raise question whether training may help close them.

Table 1 also shows that women entrepreneurs start their firms with notably lower capital than men, even though sources of financing for this capital in terms of debt and equity are similar. Further, while approximately same share of men and women entrepreneurs contributed to start-up capital from personal sources, the amount of such contribution was much smaller among women. Finally, a larger share of women than men applied for credit from the informal sector.

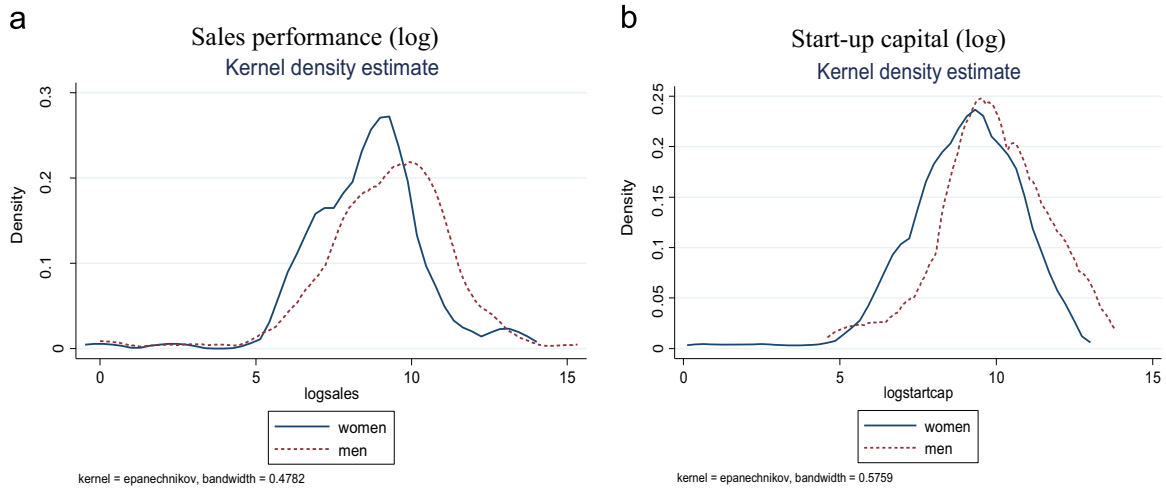
Table 2 presents mean values of key characteristics of the entrepreneurs and their firms, for the entire samples of men and women by sales quantiles. The quantile approach reveals that in Swaziland, for both genders, entrepreneurs in the higher sale ranges are older, run firms that are more mature, and employ more workers. During a typical week, successful entrepreneurs spend more hours in their firms than entrepreneurs with lower sales. The analysis also points to lower sales and employment among women entrepreneurs with firms in the highest sales quantile relative to men entrepreneurs. While top performing women tend to spend more hours a week working than men entrepreneurs, they spend a smaller share of the working time in their firms. Factors related to work-life balance and women's household responsibilities thus may also contribute to gender differences in entrepreneurial performance. Women entrepreneurs also have a smaller amount of start-up capital, especially in higher sales ranges.<sup>3</sup>

Further, the kernel density estimates of probability function of (log of) monthly sales for men and women entrepreneurs show that in these nearly uni-modal distributions men outperform women almost throughout the entire sales range. Fig. 1b indicates that women entrepreneurs have lower start-up capital than men for the entire range of values. In contrast to men who seem to reach some threshold level of capital, some women start their firms with almost no capital.

##### 4.1.1. Probit estimations

We tested if entrepreneurs' skills and start-up capital matter for firm performance (e.g., sales are stable/growing or declining) for men and women entrepreneurs in a multivariate probit regression (Table 3). Our analysis showed that firms ran by women who did not perceive skills to be a major barrier to opening or running a firm performed better than firms ran by women who viewed skills as a key barrier. Business training had a positive and statistically significant impact on

<sup>3</sup> Verheul and Thurik (2001), who examined 2000 Dutch entrepreneurs, found that female entrepreneurs have a smaller amount of start-up capital, but do not differ significantly in the type of capital from men entrepreneurs.



**Fig. 1.** Kernel density estimate sales and start-up capital for men and women entrepreneurs. 1a. Sales performance (log). 1b. Start-up capital (log). Source: Authors' calculations. Note: Sales are for a typical month. Regression analysis.

**Table 3**

Firm performance, skills and access to finance: probit estimations.

Source: Authors' estimates based on the UN Survey of entrepreneurs in Swaziland. Note: Only firms 42 months old or younger and profit motivated were considered. "Performance" is equal to "0" if sales two years ago were higher or same as in the year of the survey, and "1" if sales two years ago were lower. Heteroskedastic-robust standard error are in brackets.

	Men (1)	Women (2)
<b>Skills</b>		
Received business training	1.206 (0.574)**	0.197 (0.364)
Perceived lack of skills	-0.279 (0.451)	-1.193 (0.473)**
<b>Start-up capital and access to finance</b>		
Initial capital (log)	0.172 (0.109)	0.120 (0.107)
Applied for formal credit	-0.567 (0.462)	-0.232 (0.367)
Formal source of start-up capital	0.295 (0.405)	0.498 (0.319)
<b>Business characteristics</b>		
Size	0.071 (0.092)	0.199 (0.177)*
Age of business	-0.006 (0.013)	-0.002 (0.012)
<b>Entrepreneur's characteristics</b>		
Age 35 years of less	-0.200 (0.378)	-0.314 (0.324)
Intercept	-0.1074 (1.308)	-0.918 (1.305)
R2/Pseudo R2	0.2	0.17
# of observations	88	87

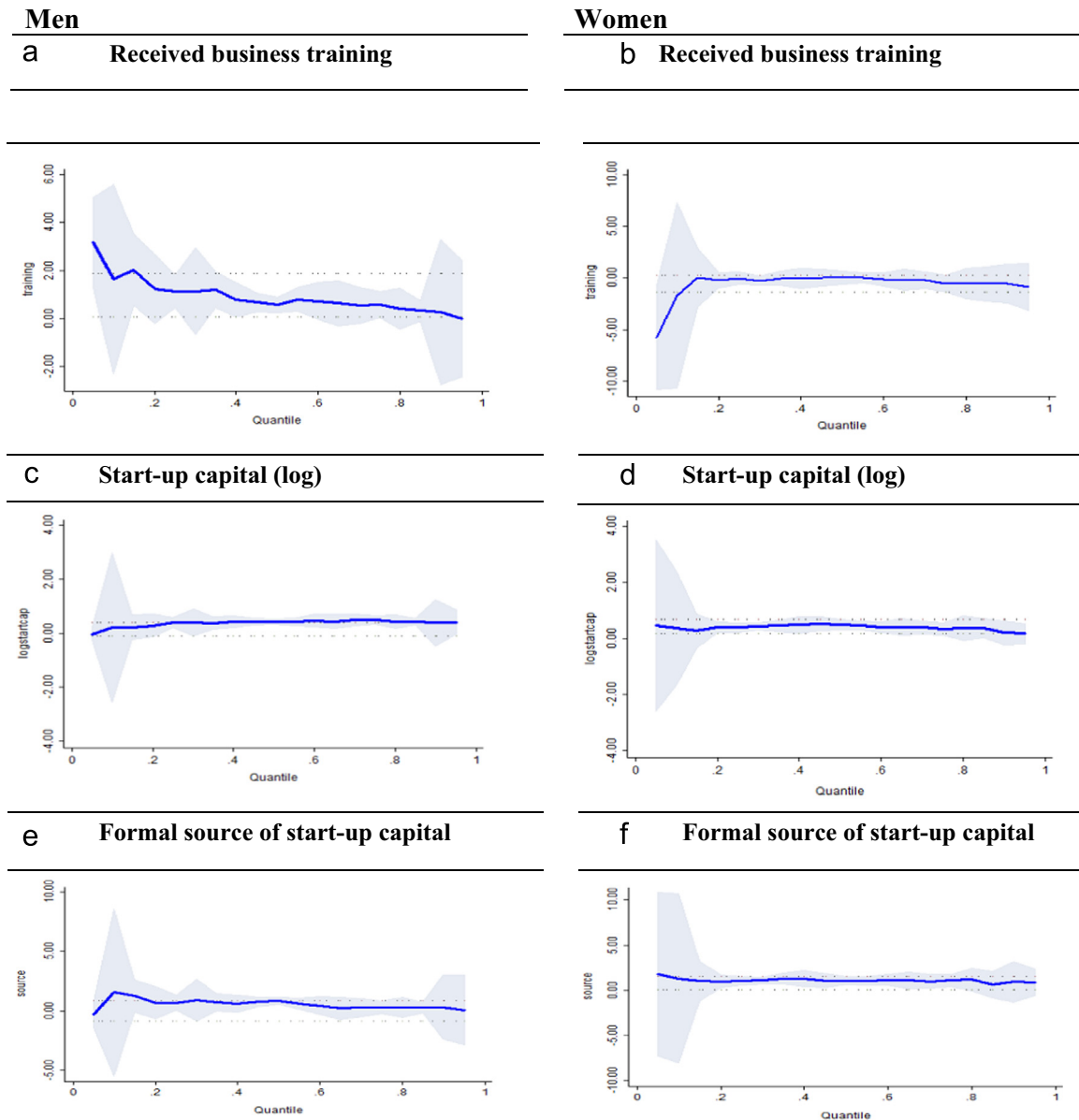
\*\*\*Denote significance at 1%.  
 \* Denote significance at 10%.  
 \*\* Denote significance at 5%.

performance of men entrepreneurs, but not on women.<sup>4</sup> In contrast, larger number of employees was associated with better performance of women but not men entrepreneurs.

4.1.2. OLS and quantile regressions

Fig. 2 and Table 4 illustrate coefficient estimates in quantile and OLS regressions. Each plot shows the variation in the

<sup>4</sup> Besides training the business environment matters. The findings from the robustness analysis (results are available upon request) showed that for all entrepreneurs, running a licensed company raises performance.



**Fig. 2.** Distribution of OLS and quantile regressions estimates. Source: Authors' calculations based on the UN 2013 Swaziland survey. Note: Horizontal lines represent OLS estimates with 95% confidence intervals. The quantiles range from 0 (for firms with the lowest sales) to 1 (for the firms with the highest sales).

coefficient of key explanatory variables – training, amount of start-up capital and formal source of start-up capital – over the sale distribution for both men and women entrepreneurs. The effect of training remains negative (though not significant) over the distribution of sales for women entrepreneurs. In contrast, training has a positive (and significant at lower ranges) but decreasing effect over the sales distribution for men (Table 4).

Further, for women in the highest sales range (to 25%), better sales performance is associated with factors such as larger size, exports, and age of business. Government support was associated with negative (and significant) impact on sales among the best female performers, but had a positive impact on sales performance among men in the lowest (bottom 25%) sales range. For these men being young – less than 35 years of age – was associated with negative and statistically significant impact on sales. No such effect was observed for women (Table 4).<sup>5</sup>

<sup>5</sup> The potential endogeneity of main variables (business training and start-up capital) is ruled out for several reasons. We expect limited measurement errors on the business training variable, which is binary. The fact that comprehensive interviews were implemented with a high rate of response should also minimize such errors on the start-up capital variable. We also rule out the reverse causation between the sales performance and the start-up capital as the latter is measured at the very initial stage of the firm. Finally, specification tests (available upon request) indicate that the model is properly specified and does not suffer for bias due to the omission of variables.

**Table 4**

Firm sales, skills and access to finance: OLS and quantile regressions, full sample.

Source: Authors' calculations based on 2012 UN Swaziland survey.

Dependent var.:Sales(log)*	OLS		Quantile regressions					
	Male	Female	Male			Female		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Skills</b>								
Received business training	<b>0.968</b> ( <b>0.457</b> )**	–0.551 (0.422)	<b>1.129</b> ( <b>0.538</b> )**	0.570 (0.345)	0.590 (0.406)	–0.025 (0.451)	0.054 (0.316)	–0.547 (0.344)
Perceives lack of skills as barrier	– <b>1.323</b> ( <b>0.605</b> )**	0.276 (0.504)	–1.089 (1.277)	–0.218 (0.762)	–0.636 (0.632)	0.414 (0.655)	0.410 (0.315)	0.049 (0.303)
<b>Capital and access to finance</b>								
Initial capital (log)	0.146 (0.131)	<b>0.429</b> ( <b>0.123</b> )***	<b>0.388</b> ( <b>0.156</b> )**	<b>0.424</b> ( <b>0.139</b> )***	<b>0.504</b> ( <b>0.182</b> )***	<b>0.383</b> ( <b>0.133</b> )***	<b>0.496</b> ( <b>0.093</b> )***	<b>0.337</b> ( <b>0.084</b> )***
Applied for formal source of credit	–0.657 (0.504)	–0.017 (0.427)	–0.684 (0.785)	–0.521 (0.442)	– <b>1.106</b> ( <b>0.459</b> )**	0.253 (0.463)	–0.033 (0.357)	–0.254 (0.277)
Formal source of initial capital	–0.010 (0.439)	<b>0.790</b> ( <b>0.378</b> )**	0.677 (0.651)	<b>0.860</b> ( <b>0.417</b> )**	0.298 (0.591)	<b>1.024</b> ( <b>0.359</b> )***	<b>1.070</b> ( <b>0.299</b> )***	<b>1.108</b> ( <b>0.316</b> )***
<b>Business characteristics</b>								
Size	0.123 (0.079)	<b>0.334</b> ( <b>0.142</b> )**	<b>0.164</b> ( <b>0.077</b> )**	<b>0.127</b> ( <b>0.052</b> )**	0.123 (0.163)	0.215 (0.442)	0.222 (0.254)	<b>0.536</b> ( <b>0.179</b> )***
Exporting firm	–0.691 (1.782)	–0.550 (1.666)	–0.060 (1.410)	–1.177 (0.929)	– <b>1.798</b> ( <b>0.563</b> )***	–0.156 (1.090)	–0.564 (0.735)	– <b>1.149</b> ( <b>0.441</b> )**
Received government support	2.121 (1.927)	–0.443 (1.193)	<b>3.285</b> ( <b>1.882</b> )*	1.884 (1.151)	1.260 (1.081)	0.022 (0.643)	–0.323 (0.539)	– <b>0.943</b> ( <b>0.394</b> )**
Age of business	–0.011 (0.015)	0.023 (0.014)	0.009 (0.022)	–0.012 (0.012)	–0.014 (0.017)	0.002 (0.017)	<b>0.018</b> ( <b>0.010</b> )*	<b>0.015</b> ( <b>0.009</b> )*
<b>Entrepreneur characteristics</b>								
Youth (less than 35 years)	– <b>1.260</b> ( <b>0.459</b> )***	–0.523 (0.376)	–0.609 (0.553)	–0.563 (0.490)	–0.506 (0.481)	–0.482 (0.483)	–0.365 (0.310)	–0.422 (0.347)
Intercept	8.111 (1.574)***	3.553 (1.158)***	3.856 (1.717)**	4.829 (1.604)***	5.197 (2.280)**	3.616 (1.321)***	2.919 (0.742)***	5.011 (0.855)***
R <sup>2</sup> /Pseudo R <sup>2</sup>	0.38	0.36	0.33	0.28	0.29	0.31	0.34	0.34
Obs	90	89	90	90	90	89	89	89

Note: Age of business is in months. Only entrepreneurs motivated by profit were considered.

\* Denote 10% significance levels.

\*\* Denote 5% significance levels.

\*\*\* Denote 1% significance levels.

Regarding the role of start-up capital, a larger amount is associated with better sale performance in firms run by men or women. For men entrepreneurs, this effect is rising along the sales distribution. Drawing on the formal source of financing for start-up capital has a positive, significant and increasing impact on sale of firms run by women entrepreneurs in all sales ranges, pointing to the importance of access to formal finance for this group.

To account for industry differences, we have also examined separately entrepreneurs operating in low-skilled sectors, such as agriculture, cleaning, tailor services, and hairdressing. In these sectors, business training has a positive and significant impact on sales posted by men entrepreneurs, but no or negative effect on sales of women entrepreneurs. The amount of the start-up capital and access to its formal financing had a positive and significant relation with sale performance of both men and women entrepreneurs throughout the sale distribution.

## 5. Conclusions

This paper contributes to the empirical literature on constraints to women's entrepreneurship in Africa with evidence from Swaziland. To the extent that women have fewer entrepreneurial skills and are more constrained accessing start-up capital than men, they are likely to face greater challenges opening new businesses and hence be less engaged in productive entrepreneurship. These findings could support government measures geared toward women entrepreneurs, especially in societies where equity factors are important.

We tested these hypotheses on data from a survey of entrepreneurs in Swaziland. Our empirical analysis confirmed the critical role of start-up capital for sales performance of both men and women, under various model specification and throughout the sale distribution. In Swaziland, women entrepreneurs have lower start-up capital and more limited access to finance it from the formal sector than men, even when sectoral differences are taken into account. The results suggest that policy interventions aiming to promote entrepreneurship in general and female one in particular should go beyond

strengthening the overall business environment and include pro-active measures such as subsidies or loan guarantees for start-up capital.

Empirical analysis showed that narrow business training for women has a limited success, even though it is associated with better sales among men. Broader training for women entrepreneurs encompassing business and technical skills as well as soft skills could be more effective.

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